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IN 075-82

21 September 1982

MEMORANDUM FOR: Chief, Planning Division, PRS/DDS&T

FROM:

[redacted]
Chief, Executive and Planning Staff, FBIS

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SUBJECT:

FY 1985 R&D Planning Cycle [redacted]

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REFERENCE:

Your Memo dated 3 August 1982

Subject: Same as Above

1. Attached are the FBIS FY 1985 R&D requirements. The first two priorities, you will note, reaffirm FY 1984 requirements dealing with antenna research and analog speech compression. The third priority refocuses an FY 1984 R&D requirement and is designed to reiterate FBIS' continuing interest in high-speed text retrieval technology. [redacted]

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2. The IC Staff has proposed, as an ORD project, research and development in [redacted] S&T machine translation. While FBIS is interested as a potential customer should ORD decide to proceed with the project, we suspect, as does ORD, that such efforts might be duplicative of commercial efforts already underway. Therefore, FBIS has not included this project as an FY 1985 R&D requirement. [redacted]

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3. I will be glad to supply any additional information you might need. [redacted]

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FOR THE DIRECTOR, FBIS:

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Attachments:

As stated

PRINCIPAL OFFICE

- | | |
|--|-----|
| 1. Antenna Research | ORD |
| 2. Analog Speech Compression | ORD |
| 3. Advanced Automated Storage and Retrieval Technology | ORD |

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Problem Statement

PRINCIPAL OFFICE: ORD

1. FBIS Problem _____
2. Title - Antenna Research
3. Policy Basis - N/A
4. Expected Benefits - Improvement of FBIS collection activities and the reduction of operating costs.

5. Customer -

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6. Problem Description - Carry out an ongoing program of research focused on antennas suitable for the 0.5 to 30 MHz frequency band. Emphasis should be on improved performance in the presence of significant man-made electrical noise under a severe size limitation. Identified antenna types should be adaptable to nonstandard physical environments such as inner city roof tops and small urban yards.

7. Background - FBIS field bureaus are typically located in office buildings and/or residential areas of major cities. The physical limitations imposed by such locations generally forces significant deviations from classical antenna types. These compromises coupled with the high man-made interference environment create a very difficult reception task. One alternate is to locate receivers and more typically antennas at remote locations. Although successful in numerous instances, this procedure is more expensive equipment wise, more vulnerable technically, and typically is dependent upon the concurrence of local authorities. It is desirable where possible to bring the entire receiving operation under the control of FBIS.

8. Time Requirements - This is a current and long-range requirement.

9. References - Current remote operations in operation - Data and characters will be supplied by FBIS Engineering.

10. FBIS priority number 1.

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Problem Statement

PRINCIPAL OFFICE: ORD

1. FBIS Problem _____
2. Title - Analog Speech Compression
3. Policy Basis - N/A
4. Expected Benefits - Solution of this problem will allow better utilization of expensive leased communication lines and receiving facilities and enhance FBIS' real-time processing capability from remote receiving sites.
5. Customer - STAT
6. Problem Description - FBIS operates several remote receiving sites using leased commercial telephone grade circuits. A high quality analog speech compression device is required which will allow simultaneous transmission of two voice broadcast signals over a single circuit.
7. Background - FBIS uses leased commercial telephone circuits to remotely receive voice broadcast data. These lines are expensive, costing in excess of \$200K for an intercontinental circuit. If the remote receiving site is manned, analog recorders can be used to record the broadcasts and sequentially retransmit them over the leased circuit. In many cases, the receiving site will be unmanned, thus precluding the use of analog recorders. The compression of two broadcast channels for transmission over one circuit would permit remote control of the receivers, increase timeliness of information and improve the overall utility of leased circuits without increasing annual lease costs.
8. Time Requirements - The problem solution is currently required and will be required over the next three-five years.
9. References - There are no written references, but discussions should be held with FBIS engineers on current remote operations.
10. FBIS priority number 2.

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Problem Statement

PRINCIPAL OFFICE: ORD

1. FBIS Problem _____
2. Title - Advanced Automated Storage and Retrieval Technology
3. Policy Basis - N/A
4. Expected Benefits - Proper indexing and storage of the data produced by FBIS and the ability to effectively retrieve this information constitute the backbone of the media analysis efforts upon which FBIS analysts rely for identifying trends and responding to internal and external queries. During the FY 1983 and 84 period, FBIS intends to develop and install an automated storage and retrieval system in support of Analysis Group, FBIS, based on MIDAS electronic input and certain selected JPRS products, utilizing to the extent possible existing full text search hardware and software. By FY 1985, technology should allow microprocessing techniques and related software to significantly improve the timeliness and efficiency of text information retrieval, thus sharply increasing the value of FBIS products for both current reporting and continuing research and analysis.
5. Customer - STAT
6. Problem Description - While FBIS is developing its initial automated storage and retrieval system, ORD in parallel is funding the University of Utah's Department of Computer Science to design the next generation text information retrieval system. Assuming that an FY 1983 design effort for the FBIS text retrieval system results in implementation, then FY 1985 would allow this new system to serve as a test bed for improvements and feasibility demonstrations of new requirements emerging from the initial operating FBIS text retrieval system.
7. Background - This whole technology area could have important applications in FBIS' Daily Reporting Division, JPRS, and in overseas field bureaus as well as possible extensions elsewhere in the Agency.
8. Time Requirements - FY 1983 and 84 efforts should be directed toward a recognition of this FY 1985 activity. In the 1986-90 time frame, planning should reflect this schedule.
9. References - Chief, Analysis Group, FBIS memorandum, "Automatic Storage and Retrieval of FBIS Materials," dated 2/5/82.
10. FBIS priority number 3.

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INFORMATION SYSTEMS PROGRAM

ADVANCED TEXT PROCESSING AND RETRIEVALORD/ISRD/

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REQUIREMENT:

[Agency analysts require rapid and interactive access to large volumes of electrically stored textual information.] This information is largely free-flowing natural language material which may be obtained from a variety of sources: wire services, cables, open source literature, memos, documents and reports, or analyst-generated notes and comments. The specification of search terms for text retrieval remains difficult due, in part, to the large variety of ways in which a relevant phrase may be worded. Analysts need a rapid text searching capability which can permit them to browse through large bodies of text, clarifying their request as they go. The purpose of the planned research is to develop text-oriented tools and techniques which can be implemented in the Agency's computer systems.

Source: FBIS-3, NPIC-RAD-018-b/c, DDA-16,
DDI-LR15, DDI-LR14

CUSTOMER/SCENARIO:

Customers: FBIS, NPIC, OCR, ODP, DDI Analysts, DDA information processing personnel
Scenario: Analysts will have access to electronically stored textual information through MIDAS, SAFE, NDS, VM, CIRC, or other computer systems. Each of these systems will have embedded within it or attached to it an automated text processing and retrieval capability. This capability may be either hardware or software as requirements or circumstances dictate. Analysts will have an interactive query specification and refinement process which allows them to filter the data to obtain information relevant to their need.

DESCRIPTION:

[The planned effort will address integrating previously developed text processing and retrieval tools and techniques into Agency application systems. Aspects of the work include assessment of the suitability of individual techniques for particular applications, design of user interfaces and query languages for text retrieval, and investigation of implementation

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INFORMATION SYSTEMS PROGRAM

ADVANCED TEXT PROCESSING AND RETRIEVALDESCRIPTION:
(Continued)

approaches using microprocessors and VLSI technology.] This project is a merger and continuation of long standing ORD efforts in text retrieval including the development of the High Speed Text Search (HSTS) device, the development of techniques for exploiting open source literature, the development of an advanced text retrieval system, and development of statistical text processing techniques.

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FUNDING:
(Dollars in
Thousands)

SYSTEM JUSTIFICATION: ORD text retrieval research programs for FY79-FY83 have identified numerous techniques that can enhance analysts' access to electronic text. VLSI design and development technologies have independently advanced to the point where the implementation of text retrieval algorithms on a chip by 1985 are quite feasible. Planned research in FY-83 and 84 will address the decision of which techniques to implement in hardware and how to integrate them into the Agency's systems.

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